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**Command and Control in a Network Centric World:  
Preserving the Operational Echelon of Command**

**By**

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**A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.**

**The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.**

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## **Abstract**

Joint Vision 2020 (JV 2020) is designed around the premise that modern and emerging technologies, particularly information-related advances, should make possible a new level of battlespace awareness in the joint operations arena. Underpinning a variety of technological advances is information superiority—the ability to detect, collect, process and disseminate an uninterrupted flow of information, while exploiting or denying an adversary's ability to do the same. The goal which JV 2020 seeks to achieve is Full Spectrum Dominance—a joint force persuasive in peace, decisive in war, preeminent in any form of conflict. If we are to truly achieve this goal of full spectrum dominance by establishing and maintaining information superiority, then the organizational echelons in the command and control structure must be maximized to use this superiority, not minimized to hamper it.

Network Centric Warfare (NCW) is one of the key tenets to meet these demands of increased information flow. Proponents of the ongoing Revolution in Military Affairs (RMA), spawned from and running parallel to the Revolution in Business Affairs (RBA), have recognized in NCW the need to restructure certain organizational paradigms for maximum effectiveness in the anticipation of achieving JV 2020 goals. According to these groups, much of the organizational evolution in the military should center around the use of a networked command and control system which, when implemented, will reduce and consolidate staff structure, allow for decentralized execution, and increase the commander's control over a more encompassing sector of the 2020 battlespace. How—and more importantly, at which levels—do we best utilize this potentially world-altering tool to maximize its effectiveness?

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## **Introduction**

It's dark...but then again, it usually is at 0330. You're on your way to work and even though you've been up for about an hour, you're still not sure exactly what your name is or what on earth you're doing awake at this hour, let alone actually driving to work. You arrive outside the compound and make your way inside the maze of corridors and passageways, nodding sleepily to security guards checking your various credentials at three or four different checkpoints. You finally make it inside to the bowels of the command center and to your desk. After dropping off your gym bag and briefcase, and taking a second to recalibrate your eyes and ears to the darkness and whirring of machines and monitors, it slowly all starts to come back to you: you are a watch officer in the Current Operations Division on a major combatant commander's staff, and you're just preparing to start your duty day.

You're "lucky" because your particular command is responsible for the majority of the world's current "hot spots," and one hot spot in particular has been the focal point of just about everyone in the world, lately. You start to grasp what the images are on the plasma screens covering the entire wall in front of you, and something strikes you as odd—based on the angle of shadows in those scenes appearing before you, it seems as if it is almost high noon. Then the last little alcove of your brain that had heretofore resisted waking up, starts firing, and you realize that despite the clock reading 0400 for your location in south central Florida, you are really already eight hours behind events occurring in your primary area of strategic and operational responsibility.

You sit down and fire up both the classified and unclassified terminals at your desk to check message traffic and e-mails, in a vain attempt to rapidly get caught up on your—and

the world's—number one priority area of interest. You see that once again, the world did not stop, or even think to slow down, from the time you departed late last night until arriving very early this morning. You reassure yourself that your friends on the Joint Forces Command (JFC) staff—one echelon below you, and the experts tasked with this particular operational area—have already seen a lot of this traffic and have gotten a great deal of data processed and arranged to answer the questions issued by the Operations Boss (J3) and the Chief of Staff (COS). But then in another rare instance of all your cranial activity working in conjunction, you suddenly remember that the “Powers That Be,” in the never-ending quest for transformation, progress, innovation and evolution, decided to eliminate the Operational Command echelon, entirely, two to three years ago.

The proponents of this radical paradigm shift championed the decision, touting that it would be a huge cost-saving benefit and would vastly reduce the unnecessary bureaucracies of huge staffs, thereby freeing up more soldiers, sailors, airmen and marines to actually man the divisions, wings, ships and corps. It would also streamline the flow of information, cutting out needless delays caused by “middlemen,” reducing time required for critical pieces of data to reach the decision-maker (your ultimate boss, the combatant commander) and then have his decision make it back to the tactical operator on the ground, some 6900 miles away. Technology had come so far and could be leveraged so much that an entire level of the national military command structure could be removed, and the overall chain of command from strategic decision makers to tactical trigger pullers could be flattened to an almost imperceptible height. After all, it had worked in the private sector for giants of industry like Wal-Mart, Hewlett Packard and Starbucks, so it only made sense to extend this analogy to the military. You make a note to thank the “Powers That Be” next time you see them, but for

now, you have to scramble to compile data and answers, and hopefully be able to do so before time runs out on several critical targets of interest. Good thing the network never goes down...

The above scenario is fictitious, and is purposely taken to extreme for effect; however, if the current trend toward organizational evolution, particularly in the realm of command and control (C2) structures continues, it could easily become reality in the not-too-distant future. Joint Vision 2020 (JV 2020) is designed around the premise that modern and emerging technologies, particularly information-related advances, should make possible a new level of battlespace awareness in the joint operations arena. Underpinning a variety of technological advances is information superiority—the ability to detect, collect, process and disseminate an uninterrupted flow of information, while exploiting or denying an adversary's ability to do the same.<sup>1</sup> The goal which JV 2020 seeks to achieve is Full Spectrum Dominance—a joint force persuasive in peace, decisive in war, preeminent in any form of conflict.<sup>2</sup> If we are to truly achieve this goal of full spectrum dominance by establishing and maintaining information superiority, then the organizational echelons in the command and control structure must be maximized to use this superiority, not minimized to hamper it.

### **The Business World, NCW and the Levels of Command**

As mentioned above, the power of information and of its potential effects is not unique to the military—there are numerous examples of highly successful business companies leveraging information superiority in their day-to-day operations. The resultant organizational changes have led to reduced staff structures, decentralized corporate

execution, and improved control over the scope and nature of business operations. These new dynamics result from the need for increased return on investment, fierce competition between business ecosystems, and the need to shorten the decision making process.<sup>3</sup> The end products of the business world differ greatly from the JV 2020 goal of Full Spectrum Dominance, but sufficient parallels between the organizations do still exist to validate a comparison. Both institutions exist, and must survive, in what has become known as the “information age.” For example, the functions of business organizations are not unlike those of the J-1 through J-6 military staff.<sup>4</sup> Generally speaking, businesses have personnel departments, corporate intelligence, current operations, supply & logistics concerns, long-range planning teams, and command and control networks. Many private companies have, in the past, organized their staffs in a manner similar to our current military C2 structure. Recently, however, the leaders in the private sector have stepped away from the military example by adapting their staff structure to meet the growing demands of massive and complex information. Those who have not adapted—and are thus losing the corporate “war”—are finding themselves swallowed by their competitors or pushed out of the business world altogether.

Warfighting commanders and their next higher echelons may be able to benefit from the lessons learned in the private sector. Is it possible to adapt the successful organizational models of modern companies to the C2 paradigm currently employed by the military hierarchy? Perhaps so, but only to a degree, as there are vast differences between what works in a corporate environment, and what type of C2 structure and mindset is needed in the combat environment. The long-term process of achieving JV 2020 capabilities requires a disciplined approach that projects the nature of future joint operations, assesses the merit of



alternative organizational concepts, and directs changes necessary to meet 2020 challenges.<sup>5</sup>

JV 2020's goal of Full Spectrum Dominance will demand operational commanders with keen abilities to make timely and informed decisions on the disposition of resources and the conduct of operations. Increased battlespace awareness through information superiority will require quicker and more efficient cooperation and integration up and down the echelons of command, as well as across functional seams within each echelon.

Network Centric Warfare (NCW) is one of the key tenets to meet these demands of increased information flow. Proponents of the ongoing Revolution in Military Affairs (RMA), spawned from and running parallel to the Revolution in Business Affairs (RBA), have recognized in NCW the need to restructure certain organizational paradigms for maximum effectiveness in the anticipation of achieving JV 2020 goals. According to these groups, much of the organizational evolution in the military should center around the use of a networked command and control system which, when implemented, will reduce and consolidate staff structure, allow for decentralized execution, and increase the commander's control over a more encompassing sector of the 2020 battlespace.<sup>6</sup> These innovative thinkers defined NCW as "...an information superiority-enabled concept of operations that generates increased combat power by networking sensors, decision makers, and shooters to achieve shared awareness, increased speed of command, higher tempo of operations, greater lethality, increased survivability, and a degree of self-synchronization."<sup>7</sup> How—and more importantly, at which levels—do we best utilize this potentially world-altering tool to maximize its effectiveness?

Joint Publication 3-0, Doctrine for Joint Operations, clearly delineates the different levels of war, and therefore command, for the Department of Defense. These levels of war,

from a doctrinal perspective, clarify the links between the strategic objectives and tactical actions. Although there are no finite limits or boundaries between them, the three levels are strategic, operational and tactical.<sup>8</sup> For the purposes of this discussion, the focus will be on highlighting the differences between the strategic and operational levels of command and war, and the need for keeping them separated.

The strategic level is defined as the level of war where national or multinational strategic security objectives and guidance are developed. Doctrinally, strategy is defined as “the art and science of developing and employing armed forces and other instruments of national power in a synchronized and integrated fashion to secure national or multinational objectives.”<sup>9</sup> The President of the United States (POTUS) and Secretary of Defense (SECDEF) translate policy into national strategic military objectives, and these objectives are then conveyed to the established combatant commanders via the Chairman of the Joint Chiefs of Staff. Combatant commanders are the “vital link between those who determine national security policy and strategy, and the armed forces that conduct military operations designed to achieve national strategic objectives.”<sup>10</sup> As this vital link, combatant commanders further transform and refine the broad national strategic objectives, thereby producing specific assessments and detailed plans; these, in turn, are then given to the operational and tactical commanders so they may ultimately carry out and accomplish their missions.<sup>11</sup>

However, it is vitally important to remember that the combatant commander is still firmly ensconced in the strategic realm of war and command, not the operational. The operational level, and consequently, the operational commander, is the lynchpin in this current hierarchical structure. It is this commander who links the tactical employment of

forces to strategic objectives. The focus at this level is on operational art, which Joint Publication 3-0 defines as, “the use of military forces to achieve strategic goals through the design, organization, integration and conduct of strategies, campaigns, major operations and battles.”<sup>12</sup> The use of operational art enables commanders to more prudently and skillfully manage available resources, so that they may achieve the strategic objectives handed down to them in their higher commanders’ intent. As Milan Vego writes in Operational Warfare, operational art “provides a framework to assist commanders in ordering their thoughts when designing campaigns and major operations,” and without the use of this key element, “war would be a set of disconnected engagements, with relative attrition the only measure of success or failure.”<sup>13</sup>

### **Command and Control and Its Application in History**

As touched on above, the operational commander’s core task is to translate strategic objectives and guidance in a coherent framework, and then to orchestrate tactical actions that achieve these objectives.<sup>14</sup> Eliminating operational echelons would have profound repercussions for those commanders attempting to employ U.S. forces throughout the world. In addition to sequencing and synchronizing joint forces in combat, the operational commander oversees the integration of several critical operational functions, namely: intelligence, fires, logistics, and protection.<sup>15</sup> The method or process by which he does this is called command and control, or C2. Specifically, C2 is “the means by which the commander synchronizes joint force activities in time, space and purpose in order to achieve Service and functional component unity of effort with respect to strategic objectives.”<sup>16</sup> A properly

organized and functioning C2 structure should allow a higher commander to supervise the decisions and actions of his subordinates, but not have the commander interfere in their operations.

Again, Operational C2 is only one operational function, but its mere existence pervades each of the other functions. For example, intelligence must be gathered, analyzed, processed and then disseminated for use in operational and campaign planning. This includes identifying the enemy's center of gravity and assessing potential intangible factors such as morale, level of proficiency, mindset and doctrine. All this "information" could simply be routed throughout the network in a blink of an eye, but information in and of itself does not automatically equate to intelligence or knowledge. Information overload can be just as costly as not having enough information, sometimes even more costly. This intelligence product, then, is a prerequisite to synchronizing operational fires, the employment of combat power to affect the conduct of an operation.<sup>17</sup> Differing from tactical fires, operational fires typically occur outside the physical and temporal boundaries of the current area of operations, and are specifically orchestrated to both shape the battlefield and have a decisive impact on the outcome. Operational logistics links strategic logistics to tactical logistics, and, in addition to enhancing and extending operational reach, its main purpose is to "ensure that one's actions are continuous through all phases of a major operation or campaign."<sup>18</sup> Finally, operational protection utilizes a broad array of components including indications and warnings (I&W) systems, airspace control, operations security, physical security and hardening and defending critical logistics infrastructure and lines of communication. The design of these and other components is to enable the operational commander to have a theater-wide protection plan and ability to "impede the enemy from using his firepower or

other unconventional sources...to destroy, neutralize or degrade the physical and moral capabilities of one's forces and non-military sources of power.”<sup>19</sup>

The advocates of NCW tend to portray intermediate echelons as information filters and therefore overlook the versatility provided by the operational command level. As shown above, operational commanders do much more than simply relay information. Eliminating operational echelons altogether would completely “shift the burden for training forces, planning for operations, and integrating operational functions to either the strategic or tactical level command echelons.”<sup>20</sup> Neither one of these two levels is properly equipped to handle this massive responsibility because of limiting factors like span of control, burden sharing, on-scene command presence and unity of effort. All of these factors, and more, comprise what is currently a very delicate organizational balance between the strategic realm and that of the tactical operator. For example, the use of deep-strike precision and stealth assets to simultaneously attack strategic, operational and tactical targets in Operations Desert Storm, Enduring Freedom and Iraqi Freedom have led to speculation that the boundaries separating the levels of war and command have become blurred, and that perhaps the distinction will disappear completely.<sup>21</sup> However, rather than use this blurring of the boundaries as an excuse to remove one or more levels, these advocates should realize this is merely a reflection of the ever-changing and dynamic nature of warfare, and that there needs to be definitive entities established at each level to process the flow of information and decision-making as issues transcend each level. Restated, rather than a reason to eliminate the operational command echelon, the predicted and observed blurring of boundaries between the levels of war will actually increase the need for Operational C2. Operational commanders will not only need to cope with the faster tempo of activity in future wars; they

will need to determine how to influence strategy using simultaneous strategic and tactical planned events.<sup>22</sup>

In addition to moving away from the current hierarchical command structure, proponents of NCW have also stated that the current form of command style has numerous inadequacies for the “information age.” Citing the increased tempo of warfare, and improved information gathering abilities, these proponents argue for enabling a “well-informed force to organize and self-synchronize complex war activities from the bottom up.”<sup>23</sup> This inherently leads to the on-going doctrinal debate on the “constantly shifting organizational tension between centralization and decentralization.”<sup>24</sup> It is important to remember, however, that this debate is truly about two different methods, namely: centralized control or direction, and decentralized execution. Attempting to combine the two or blur their differences results in unnecessary ambiguity, much in the same way “command and control”—two very distinct entities—have been lumped together into one process. Truly, command is authority, and control is the process by which this authority—in the form of information and orders—is disseminated through the different levels in the chain of command.

The primary driving theme of successful command and control is a resultant combination of these two styles, namely “centralized direction and decentralized execution”; however, there has been a “steady movement in the last decade toward increased centralization on all levels.”<sup>25</sup> There are advantages and disadvantages to employing either style. A centralized system provides more control over elements within the organization, and it is therefore less likely that subordinates will take actions that are contrary to their higher commander’s intent. On the other hand, highly centralized C2 systems are vulnerable to decapitation, and then subordinate commands, if too centralized, are left to function as

uncoordinated factions. An adversary can inflict strategic paralysis simply by removing the decision-making authority from the equation.<sup>26</sup> Another drawback is that the lack of flexibility of a highly centralized approach tends to stifle the initiative of the subordinate commanders, and unnecessary time delays may be caused while these subordinate levels wait for further guidance from higher headquarters. In today's increasingly time-sensitive and time-critical types of warfare the operational factor of time is paramount.

A decentralized system, conversely, seeks to focus on and leverage initiative, thereby maximizing the value of individual thought inherently believed to exist in lower echelons. In a direct attempt to prevent overloading the top tiers of the command and control structure, a decentralized system specifically mandates delegating decision-making authority down the chain to subordinate levels; however, a vital caveat in this system is the understanding that while authority has been delegated, responsibility for those decisions still remains at the higher level.<sup>27</sup> An organization that successfully utilizes a decentralized style can typically gain advantages in speed of reaction and decision, but this sometimes can occur at the expense of precision. Once again, vital to the success or failure of the C2 system is the clarity and widespread understanding of the higher commander's intent. The model of this type of system and its vast potential for success is the German use of task-oriented orders (*Ausfragstaktik*), in which Army commanders were issued instructions and not detailed orders—they were told what to do, not how to do it.<sup>28</sup>

In more recent history, Operations Desert Storm, Allied Force and Enduring Freedom each provide poignant examples of the physical application of the debate over centralized versus decentralized, from the battlefield to the board room. Desert Storm was the first real glimpse of how far our technological innovations and superiority had allowed us to travel.

These strengths allowed U.S. forces to achieve two of the stated goals of NCW, namely: information superiority and enemy lockout. Air supremacy enabled the operational commander to attack strategic, operational and tactical targets (predominantly Iraqi command and control nodes and capabilities) with relative impunity. U.S. forces then combined this gained information superiority with rapid decision-making to achieve a level of enemy lockout—in other words, “they demonstrated the ability to operate inside the enemy’s decision cycle, or observe, orient, decide and act (OODA) loop.”<sup>29</sup> An excellent example of this occurred in Kafji.

After the initial coalition attack on 29 January 1991, Iraqi columns of tanks began forming in Kuwait to reinforce the primary striking force. U.S. commanders used E-8 JSTARS aircraft, providing real-time intelligence, targeting information and precision airborne attack capabilities, to destroy the Iraqi force before it could mass and attack coalition ground forces. Reports show 357 tanks, 147 APCs and 89 mobile artillery pieces were destroyed in these air attacks. This was the first, and last, attempt by the Iraqi forces to go on the offensive during the war.<sup>30</sup> U.S. forces had combined information superiority with the flexibility to respond in rapid fashion to destroy the Iraqi ability to move or mass their troops and weapons. Yet, as important as the technological advances were, ultimately the war was not about weapons systems or technology—rather, “it was fundamentally about consensus building, and the orderly formation of national goals; about diplomacy and leadership in the pursuit of those goals; and astute planning and coordinated action by skilled professionals in the employment of military power.”<sup>31</sup> In other words, it was about operational art.



Desert Storm, at least from the air war perspective, showed that centralized command but decentralized execution was the most effective and efficient way to use military power. General Schwarzkopf, Commander Central Command (CENTCOM), gave clear strategic guidance, and then delegated operational and tactical authority, again, at least in the air war. He did not monitor the air war in real time, nor did he approve targets once hostilities began. This “hands-off” approach continued even after the strike on the Al Firdos bunker in Baghdad that reportedly killed more than 200 civilians. This event, of course, brought intense pressure from his superiors in Washington, and resulted in Schwarzkopf continually back-briefing Washington on targets in Baghdad, but not getting approval ahead of time to attack them.<sup>32</sup> The important point is that “the concept of reach forward—having a direct impact on tactical evolution—was not yet a reality.”<sup>33</sup> Ironically, this same CENTCOM commander chose a completely different, and highly centralized, path in his prosecution of the ground war, as he declined to delegate authority through his intermediate levels of command. At once, Schwarzkopf was CENTCOM, the commander of the Kuwaiti theater of operations, as well as de facto land component commander, with his forward headquarters in Riyadh.<sup>34</sup>

Operation Allied Force in Kosovo saw more new and advanced technologies, primary among those being e-mail (both classified and unclassified) and unmanned aerial vehicles (UAVs). This latter ability enabled commanders the advantage of close battlespace awareness, and the former allowed multiple higher commanders to gain this same awareness as the operational and tactical commanders. One of these higher commanders, the Supreme Allied Commander Europe (SACEUR) had a video terminal in his office that showed “real-time” video relays from UAVs over the battlespace. SACEUR elected to run day-to-day

operations rather than delegate responsibility to his subordinate, Allied Forces Southern Europe (AFSOUTH).<sup>35</sup> In one instance, SACEUR was watching this video and saw three vehicles that looked like tanks appear on a road. He then immediately picked up a phone, called the Joint Forces Air Component Commander (JFACC) and directed that those tanks be destroyed.<sup>36</sup> In a single call, based on inaccurate and incomplete information—not actual vetted and processed intelligence—the strategic commander transcended all levels of war and highlighted one of the glaring potentially destructive capabilities of “reach forward.” The result was that the senior NATO military officer and direct representative of U.S. national and multinational strategic interests got bogged down in attempting to make tactical decisions.

The air war was further hindered by the fact that the target approval process had to go through nineteen different countries, and that SACEUR pressured planners to produce a list of 5000 targets.<sup>37</sup> After being informed by his staff and subordinate commands that there were not that many targets in Serbia, SACEUR reduced the number to 2000, and many of the targets actually struck had absolutely no military capability whatsoever.<sup>38</sup> Not allowing the operational commander to attack strategic targets, nor giving him the tools necessary to effectively target the Serbian military forces in Kosovo as he would have seen fit, turned what many thought would have been a one week operation into a 78-day campaign. The advances in technology as expressed through NCW and other arenas were virtually all but negated by the lack of a sound and complete strategic and ensuing operational plan. In addition, the sheer volume of information available to the operational commanders and above became a problem. General John Jumper, then Commander U.S. Air Forces Europe, said the Combined Air Operations Center (CAOC) was “..filled with more than sixty separate

displays, each with different information. That presented an incoherent view of the battlespace.”<sup>39</sup> Information overload and rigidly centralized C2 at its worst.

By the time Enduring Freedom rolled around, some six years later, technology had once again made leaps and bounds, this time in the form of bandwidth/communications capabilities and precision guided (GPS or laser) weapons. “High volumes of human intelligence were combined with the take from multiple intelligence, surveillance and reconnaissance sensors to deliver unprecedented situational awareness.”<sup>40</sup> In addition, the time delay problems normally associated with transferring this large amount of vital information from sensor to shooter had been greatly reduced. This ability to link sensors to shooters in real time allowed self-synchronization to be achieved at the tactical level, and when combined with clear and succinct commander’s intent and ROE as guidelines, U.S. forces were able to engage and destroy the enemy whenever and wherever he was discovered. In addition, the increases in bandwidth and communications allowed the CENTCOM commander, General Tommy Franks, to remain in the United States, establish his JFACC in Southwest Asia, and disperse the tactical forces throughout the region. In theory, this ability to “reach back” and “reach forward” enabled the C2 structure to remain effective; however, this also created the huge allure for the strategic commander to directly control tactical actions. In actual practice, the CAOC’s battlespace picture was piped directly to CENTCOM headquarters, allowing General Franks to grant, or withhold, approval for strikes in Afghanistan.<sup>41</sup> This obviously frustrated forward deployed commanders and tacticians on the several occasions when CENTCOM would override the CAOC’s decisions. The major problem arose over time-sensitive targeting (TST) when guidance required that CENTCOM had to approve strikes on pop-up targets thought to be senior Taliban or Al

Qaeda leaders. As a result of this micromanagement, an opportunity to strike a senior Taliban leader was missed because the operational commanders were waiting for approval from the strategic commander to engage the target.<sup>42</sup>

Enduring Freedom was an overwhelming victory for the U.S. military, but it served to highlight the importance of the role (and ability) of an operational commander to transform strategic goals into clear and identifiable military objectives. The system, and the operation, would not have worked if commanders had started with targets first, and then attempted to work backwards to achieve some nebulous strategic objective, as had been done in the past. The product of the highly-networked force in Enduring Freedom was the direct involvement of the operational commanders in tactical actions; however, a perhaps unintended by-product of this system, was the close interaction and involvement of the strategic commanders, as well. NCW had enabled commanders and staffs existing in the strategic and operational realms to view the tactical picture, which was a distinct departure from previous conflicts. Prior to Afghanistan, “decentralized execution was the only option because the tactical picture was limited to those actually doing the fighting”—ironically, this move to centralized execution was what eventually led to missed opportunities on the battlefield.<sup>43</sup> Again, the need for centralized direction and decentralized execution.

## **Conclusions and Recommendations**

*With exponentially exploding technology in weapons and our ability to process information, the ability to optimize the command and control structure will take on even greater importance.*<sup>44</sup>

*GEN Charles C. Krulak, USMC (ret)*

To fully realize the potential of Joint Vision 2020, the existing paradigm of staff structure needs to be re-thought in order to optimize Command and Control in conflict. Through information superiority, 2020 commanders will potentially be effective over a much wider span of operations than in the past. With the advent of smaller, more integrated staffs along with an effective command and control network, strategic commanders may be able to control more forces, directly. The result will be a “flatter” organization with fewer layers between combatant commanders—and, even higher, grand national strategic figures—and the war fighter.<sup>45</sup> As has been shown in successful corporations in the private sector, optimum C2 and support depends on seamless communications, real-time sensors, current and accurate data bases, and the resulting real-time battlespace awareness for the JFC and the entire organization.<sup>46</sup>

Utilizing an integrated network like Network Centric Warfare, the C2 structure will process volumes of required information and will almost instantly provide feedback to the users on the network and to the JFC directly. It is paramount to remember, however, that the C2 structure and process exists only to have command and control over information, but not over the execution of engagements. The network exists to provide the path for the Commander’s Intent (the what) to reach from the national strategic planners and thinkers down to the Operational Commander so that he or she may decide the precise means and methods (the how) to accomplish the objectives that will enable ultimate success. Networked information from various subordinate units and levels will come together to ultimately paint a picture for the strategic commanders, providing an accurate and real-time view of the battlespace and allowing leaders to more fully leverage the capabilities of the entire force.

However, the network should not exist for the combatant commanders and higher to actually dictate tactical actions.

With all its inherent capabilities, NCW cannot replace people. “Warfare is a human interaction in which each side has a host of subject matter experts and mission area specialists each trying to anticipate how their opponent will react to their actions.”<sup>47</sup> While technology can allow for a more efficient prosecution of war, it cannot change its nature—it is still human against human, and therefore human judgment will always be required to train for, plan and execute operations in a combat environment. “Human flexibility and common sense transcend the realm of logic.”<sup>48</sup> While NCW can certainly aid in the decision-making process—and speed the decision, once made, throughout the “web of command”—it simply cannot replace the decision maker himself. According to Marine Corps Doctrinal Publication (MCDP)-6:

“We believe that the object of technology is not to reduce the role of people in the command and control process, but rather to enhance their performance...Technology should seek to automate routine functions which machines can accomplish more efficiently than people in order to free people to focus on the aspect of command control which require judgment and intuition.”<sup>49</sup>

The continued growth of technology, expressed in this paper through the primary example of NCW, has the potential to greatly decentralize execution of operations, but the JFC must maintain the ability to influence and orchestrate decisions on the field. Strategic commanders must articulate their overall intent succinctly for decentralized execution to work. In times of crises, strategic commanders will still have direct decision authority over both operational and tactical commanders, and may effect explicit centralized control when situations dictate.

NCW also cannot change the fundamental principles of successful command. In this “information age”, there is a tremendous temptation for upper echelon commanders to “reach forward” in an attempt to directly affect decision-making at increasingly lower levels. This potential would remain regardless of how “flat” the command structure is, and originates from such sources as lack of comfort with subordinate leaders, distrust, lack of faith in training and doctrine, and even a comfort level from past familiarity and experience. All of these sources, when combined with the continued advances of technology, could enable commanders to micromanage to a degree previously unattainable. “With instant connectivity among all players, and a resultant false sense of security that the commander has the entire picture, commanders and senior civilian authorities may be tempted to assert themselves at inappropriate levels of war from strategic to tactical.”<sup>50</sup> The reason different levels of war exist is to ensure that proper focus is given to the strategic, operational and tactical levels of war. Having a strategic level commander attempting to control operations at the tactical level violates this principle. This is one of the subtle but serious dangers of NCW; however, clear delineation of commander’s intent, sound doctrine, and disciplined training to its adherence can mitigate this problem.

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